

National Institute of Standards and Technology

The National Institute of Standards and Technology (NIST) is responsible for the measurement foundation that supports U.S. industry, government and scientific establishments. NIST develops and promotes measurements, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life. NIST carries out this mission through four major programs.

The **NIST Laboratories** research program focuses on providing the measurements, standards, verified data, and test methods necessary to support the development of new technologies and to promote the competitive standing of the U.S. in the global economy. The world-class scientific and technical staff works closely with private industry, academic researchers, and other government agencies.

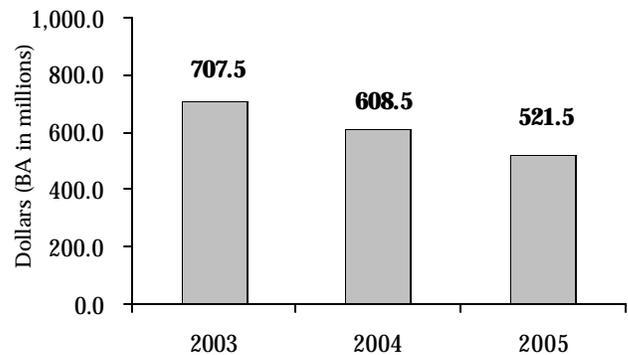
The **Advanced Technology Program (ATP)** assists industry to invest in and develop high-risk, innovative technologies that promise broad benefits for the Nation.

The **Manufacturing Extension Partnership (MEP) Program** assists small manufacturing establishments in assimilating new technologies and manufacturing practices through government-industry partnerships and extension services.

The **Baldrige National Quality Program (BNQP)** is a highly visible quality management program focused on instilling the principles of continuous quality improvement in U.S. businesses and educational and health care organizations.

In addition, NIST has initiated a long-term program to upgrade and maintain its physical plant. Significant and sustained investment to upgrade existing facilities, which are 35 to 45 years old, is required to support NIST research in the 21st century.

NIST Funding



Summary of Appropriations

Funding Levels

Appropriation	<u>Actual</u>	2004 <u>Estimate</u>	2005 <u>Estimate</u>	Increase <u>(Decrease)</u>
Scientific and Technical Research and Services	\$357,075	\$340,743	\$422,868	\$82,125
Industrial Technology Services	284,760	216,480	39,190	(177,290)
Construction of Research Facilities	65,670	64,271	59,411	(4,860)
Total Appropriation	707,505	621,494	521,469	(100,025)
Unobligated balance, rescission, STRS		(4,276)	0	4,276
Unobligated balance, rescission, ITS		(8,710)	0	8,710
Transfer to CRF from ITS	5,600			
Transfer from ITS to CRF	(5,600)			
Working Capital Fund	[282]	[282]	[8,982]	[8,700]

Budget Authority

Scientific and Technical Research and Services	357,075	336,467	422,868	86,401
Industrial Technology Services	284,760	207,770	39,190	(168,580)
Construction of Research Facilities	65,670	64,271	59,411	(4,860)
TOTAL, BUDGET AUTHORITY	707,505	608,508	521,469	(87,039)

FTE

Scientific and Technical Research and Services	1,938	1,943	2,022	79
Industrial Technology Services	336	275	41	(234)
Construction of Research Facilities	53	53	54	1
Working Capital Fund	692	741	773	32
Total	3,019	3,012	2,890	(122)

Highlights of Budget Changes

Appropriation: Scientific and Technical Research and Services

Summary of Requirements

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2004 Appropriation			1,943	\$340,743
Adjustments to Base				
Transfers				
Transfer National Medal of Technology Program to Technology Administration			(2)	(450)
Adjustments				
Restoration of FY 2004 Deobligation Offset		\$1,000		
Restoration of Rescissions	9	3,623		
Less FY 2004 unrequested projects		(13,900)		
Subtotal, adjustments			9	(9,277)
Other Changes				
2004 Pay raise		1,867		
2005 Pay raise		2,120		
Payment to the Working Capital Fund		42		
Full year cost in FY 2005 of positions financed for part year in FY 2004	7	0		
Annualization of FY 2004 position reductions	(56)			
Within-grade step increases		1,896		
Change in compensable day		(713)		
Civil Service Retirement System (CSRS)		(281)		
Federal Employees' Retirement System (FERS)		430		
Thrift Savings Plan		80		
Federal Insurance Contributions Act (FICA) -OASDI		116		
Health insurance		1,131		
Employees' Compensation Fund		64		
Travel:				
Mileage		(1)		
Per diem		221		
Rental payments to GSA		2		
Printing and reproduction		4		
Other services:				
Working Capital Fund		241		
Commerce Administrative Management System		(9)		
Increased security for Yellow Terrorist Threat Level		541		
Supplies and materials: Scientific journal subscriptions		110		
General pricing level adjustment:				
Transportation of things		8		
Rental payments to others		22		
Communications, utilities, & miscellaneous charges		80		
Other services		352		
Supplies and materials		110		
Equipment		208		
Subtotal, other cost changes			(49)	8,641
TOTAL, ADJUSTMENTS TO BASE			(42)	(1,086)
2005 Base			1,901	\$339,657
Program Changes			121	84,211
TOTAL REQUIREMENTS			2,022	423,868
Recoveries from Prior Year Obligations				(1,000)
2005 APPROPRIATION			2,022	422,868

Comparison by Activity

	2004 Currently Avail.		2005 Base		2005 Estimate		Increase / Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
DIRECT OBLIGATIONS								
Electronics & electrical engineering	266	\$45,033	260	\$44,274	289	\$53,360	29	\$9,086
Manufacturing engineering	127	21,879	127	21,607	144	29,607	17	8,000
Chemical science & technology	267	42,233	267	43,402	281	48,802	14	5,400
Physics	181	37,788	183	38,617	187	41,342	4	2,725
Materials science & engineering	321	53,815	308	54,640	320	62,940	12	8,300
Building & fire research	120	21,420	120	19,563	125	23,563	5	4,000
Computer science & applied math.	313	49,836	299	51,034	324	58,034	25	7,000
Technology assistance	106	15,236	96	15,621	100	17,621	4	2,000
National quality program	46	5,864	43	5,414	43	5,414	0	0
Research support activities	196	54,799	198	45,203	209	74,203	11	29,000
TOTAL DIRECT OBLIGATIONS	1,943	347,903	1,901	339,375	2,022	414,886	121	75,511
FINANCING								
Unobligated balance, start of year		(10,718)						
Recovery of prior year obligations		(1,000)		(1,000)		(1,000)		0
Subtotal, financing	0	(11,718)	0	(1,000)	0	(1,000)	0	0
TOTAL BUDGET AUTHORITY	1,943	336,185	1,901	338,375	2,022	413,886	121	75,511
Unobligated balance, rescission		4,276						
Transfers		282		282		8,982		8,700
TOTAL APPROPRIATION	1,943	340,743	1,901	338,657	2,022	422,868	121	84,211

Highlights of Program Changes

	Base		Increase / Decrease	
	FTE	Amount	FTE	Amount
Electronics and Electrical Engineering	260	\$44,274	+29	+\$11,586

An increase (+21 FTE, +\$7,586) is requested to develop the measurements and standards for rapid and appropriate response to chemical, biological, nuclear, radiation, and explosive (CBNRE) threats.

Of this amount, a transfer of \$1,000 will be made to the NIST Working Capital Fund.

An increase (+8 FTE, +\$4,000) is requested to develop the critical enabling measurements and standards needed for nanotechnology applications in the electronics and semiconductor industries.

Of this amount, a transfer of \$1,500 will be made to the NIST Working Capital Fund.

Manufacturing Engineering	127	\$21,607	+17	+\$8,000
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An increase (+17 FTE, +\$8,000) is requested to expand nanomanufacturing research and create a National Nanofabrication and Nanometrology User Facility within NIST's new Advanced Measurement Laboratory.

	<u>FTE</u>	<u>Base</u> <u>Amount</u>	<u>Increase / Decrease</u> <u>FTE</u>	<u>Amount</u>
Chemical Science and Technology	267	\$43,402	+14	+\$6,600

An increase (+3 FTE, +\$1,600) is requested to provide manufacturers with advanced measurements, standards, and data for medical technologies, in the priority areas of In Vitro Diagnostics and artificial materials and biomarkers for tissue engineering.

Of this amount, a transfer of \$600 will be made to the NIST Working Capital Fund.

An increase (+11 FTE, +\$5,000) is requested to establish a core program in measurements and standards for biosystems, such as gene and protein expression technologies, nanobiotechnology, and DNA and protein markers.

Of this amount, a transfer of \$600 will be made to the NIST Working Capital Fund.

Physics	183	\$38,617	+4	+\$3,725
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An increase (0 FTE, +\$725) is requested to ensure the availability of critical systems provided by the NIST Time Scale and Time Dissemination services, and to develop in parallel an improved infrastructure for distributing the more accurate time that civilian and defense applications will require in the near future.

An increase (+4 FTE, +\$3,000) is requested to provide measurements, standards, data, and testing methods to accelerate the development of quantum information science, including establishing a test bed for quantum communications.

Of this amount, a transfer of \$1,000 will be made to the NIST Working Capital Fund.

Materials Science and Engineering	308	\$54,640	+12	+\$8,300
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An increase (+12 FTE, +\$8,300) is requested to strengthen the scientific research programs at the NIST Center for Neutron Research (NCNR). Through 400 new strategic collaborations, U.S. industrial and academic researchers would be able to tap into the Nation's premier neutron facility for solving their applied and fundamental research problems. In addition, a portion of this initiative (\$3,300) will assist in covering the sharp increases in costs in reactor fuel and other reactor related services and materials.

Building and Fire Research	120	\$19,563	+5	+\$4,000
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An increase (+5 FTE, +\$4,000) is requested to develop and implement, through a public-private program, the standards, technology, and practices needed to develop effective retrofit and design measures and operational guidance for building owners and first responders.

Computer Science and Applied Mathematics	299	\$51,034	+25	+\$7,000
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An increase (+22 FTE, +\$6,000) is requested to work with industry and government agencies, including the Department of Homeland Security, to accelerate solutions to critical cybersecurity issues by developing comprehensive cybersecurity standards, prototypes, product specifications, and testing procedures.

An increase (+3 FTE, +\$1,000) is requested to provide standard methods to measure the accuracy of biometric identification systems in compliance with the USA PATRIOT Act of 2001.

	<u>FTE</u>	<u>Base</u> <u>Amount</u>	<u>Increase / Decrease</u> <u>FTE</u>	<u>Amount</u>
Technology Assistance	96	\$15,621	+4	+\$2,000

An increase (+4 FTE, +\$2,000) is requested to provide the necessary tools that U.S. manufacturers need to address increased international standards-related issues in order to overcome potential trade barriers, thus ensuring a broader global market for U.S. products.

Research Support Activities	198	\$45,203	+11	+\$33,000
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An increase (0 FTE, +\$25,500) is requested to acquire the sophisticated research equipment needed to realize the full capabilities of NIST's new Advanced Measurement Laboratory. The AML will be the world's best measurement laboratory, helping provide the measurements and standards needed by industry and science in key 21st century technologies. Making such measurements requires not only the precisely-controlled AML environment but also sophisticated scientific equipment.

An increase (+11 FTE, +\$7,500) is requested to expand the Building Competence for Advanced Measurements Program, which supports the development of cutting-edge new measurement capabilities that will be needed to support future advances in industry and science.

Of this amount, a transfer of \$4,000 will be made to the NIST Working Capital Fund.

Appropriation: Industrial Technology Services

Summary of Requirements

	Summary	
	<u>FTE</u>	<u>Amount</u>
2004 Appropriation	275	\$216,480
Adjustments to Base:		
Adjustments		
Restoration of FTEs and Rescissions	40	72
Other Changes		
Annualization of FY 2004 position reductions	(27)	0
TOTAL, ADJUSTMENTS TO BASE	<u>13</u>	<u>72</u>
2005 Base	288	216,552
Program Changes	(247)	(177,362)
TOTAL REQUIREMENTS	<u>41</u>	<u>39,190</u>
Recoveries from Prior Year Obligations		0
2005 APPROPRIATION	<u>41</u>	<u>39,190</u>

Comparison by Activity

	2004 Currently Avail.		2005 Base		2005 Estimate		Increase / Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
DIRECT OBLIGATIONS								
Advanced Technology Program	207	\$193,372	247	\$177,362	0	\$0	(247)	(\$177,362)
Manufacturing Extension Partnership	68	40,034	41	39,190	41	39,190	0	0
TOTAL DIRECT OBLIGATIONS	<u>275</u>	<u>233,406</u>	<u>288</u>	<u>216,552</u>	<u>41</u>	<u>39,190</u>	<u>(247)</u>	<u>(177,362)</u>
FINANCING								
Unobligated balance, start of year		(21,836)						0
Recovery of prior obligations		(3,800)						0
Unobligated balance, end of year		0						0
Subtotal, financing		<u>(25,636)</u>		<u>0</u>		<u>0</u>		<u>0</u>
TOTAL BUDGET AUTHORITY	<u>275</u>	<u>207,770</u>	<u>288</u>	<u>216,552</u>	<u>41</u>	<u>39,190</u>	<u>(247)</u>	<u>(177,362)</u>
Unobligated balance, rescission		8,710		0		0		0
TOTAL APPROPRIATION	<u>275</u>	<u>216,480</u>	<u>288</u>	<u>216,552</u>	<u>41</u>	<u>39,190</u>	<u>(247)</u>	<u>(177,362)</u>

Highlights of Program Changes

	Base		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Advanced Technology Program</u>	247	\$177,362	-247	-\$177,362

A decrease (-247 FTE, -\$177,362) is requested. The Administration proposes that the program be eliminated. Therefore, no funding is requested for this program in FY 2005.

Appropriation: Construction of Research Facilities**Summary of Requirements**

	Detailed		Summary	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2004 Appropriation			53	\$64,271
Adjustments to Base				
Adjustments				
Restoration of Rescissions		\$683		
FY 2004 Gaithersburg construction		(8,469)		
FY 2004 Boulder construction		(12,633)		
Less FY 2004 unrequested projects		(21,000)		
Subtotal, adjustments			0	(41,419)
Other Changes				
2004 Pay raise		41		
2005 Pay raise		48		
Within-grade step increases		45		
Change in compensable day		(16)		
Civil Service Retirement System (CSRS)		(7)		
Federal Employees' Retirement System (FERS)		10		
Thrift Savings Plan		2		
Federal Insurance Contributions Act (FICA) -OASDI		3		
Health insurance		25		
General pricing level adjustment:				
Other services		121		
Supplies and materials		10		
Equipment		5		
Subtotal, other cost changes			0	287
TOTAL, ADJUSTMENTS TO BASE			0	(41,132)
2005 Base			53	23,139
Program Changes			1	36,272
2005 APPROPRIATION			54	59,411

Comparison by Activity

	2004 Currently Avail.		2005 Base		2005 Estimate		Increase / Decrease	
	ETE	Amount	ETE	Amount	ETE	Amount	ETE	Amount
DIRECT OBLIGATIONS								
Construction & Major Renovations	53	\$74,999	53	\$23,139	54	\$59,411	1	\$36,272
TOTAL DIRECT OBLIGATIONS	53	74,999	53	23,139	54	59,411	1	36,272
FINANCING								
Unobligated balance, start of year		(10,728)						0
Unobligated balance, end of year		0						0
Subtotal, financing		(10,728)		0		0		0
TOTAL BUDGET AUTHORITY	53	64,271	53	23,139	54	59,411	1	36,272
Transfer to Working Capital Fund		0		0		0		0
TOTAL, APPROPRIATION	53	64,271	53	23,139	54	59,411	1	36,272

Highlights of Program Changes

	Base		Increase / Decrease	
	FTE	Amount	FTE	Amount
<u>Construction and Major Renovations</u>	0	\$0	0	+\$25,700

An increase (+\$25,700) is requested for a Facilities Technical Obsolescence initiative to proceed with the next steps to complete several urgently needed construction and major renovation projects at the Boulder, Colorado, and Gaithersburg, Maryland, NIST sites. Projects included in this request for the Boulder, Colorado, site include: (1) completion of the central utility plant (+\$16,400); (2) the partial renovation of Building 4 (+\$1,800); and (3) the design for the renovation of the main building on site, Building 1 (+\$6,500). One project for the Gaithersburg, Maryland, site for the relocation of NIST North personnel to the Gaithersburg main campus (+\$1,000) is also included in this request.

<u>Modifications and Improvements</u>	53	\$23,139	+1	+\$10,572
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An increase (+1 FTE, +\$10,572) is requested for a Safety, Capacity, Maintenance and Major Repairs (SCMMR) initiative to bring NIST's safety, capacity, maintenance, and major repairs base funding to an annual level that provides almost \$34 million a year to maintain the Gaithersburg, Maryland, and the Boulder, Colorado, sites. This request will help NIST replace significantly degraded HVAC and mechanical equipment, ensure that recent investments in new construction are safeguarded through preventive maintenance, install energy saving systems, and implement enhanced security and fire protection systems – all efforts to reduce long-term facilities costs and protect NIST staff and visitors.

Appropriation: Working Capital Fund**Comparison by Activity**

	2004 Currently Avail.		2005 Base		2005 Estimate		Increase / Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
DIRECT OBLIGATIONS								
Direct Obligations		\$282		\$282		\$8,982	0	\$8,700
Reimbursable Obligations	741	162,371	692	143,011	773	143,011	81	0
WCF Investments		25,265		20,400		20,400	0	0
TOTAL OBLIGATIONS	741	187,918	692	163,693	773	172,393	81	8,700
FINANCING								
Unobligated balance, start of year		(112,044)		(50,357)		(50,357)		0
Unobligated balance, end of year		50,357		50,343		50,343		0
Offsetting collections from:								
Federal funds		(86,072)		(124,026)		(124,026)		0
Non-Federal sources		(39,877)		(39,371)		(39,371)		0
Subtotal, financing	0	(187,636)	0	(163,411)	0	(163,411)	0	0
TOTAL BUDGET AUTHORITY	741	282	692	282	773	8,982	81	8,700
TRANSFERS								
From other accounts		(282)		(282)		(8,982)		(8,700)
TOTAL, APPROPRIATION	741	0	692	0	773	0	81	0